

214505US-8-PCT

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF: :
YUICHI WATANABE : ATTN: APPLICATION DIVISION
SERIAL NO: NEW U.S. PCT APPLN :
(Based on PCT/JP01/00885)
FILED: HEREWITH : EXAMINER:
FOR: APPARATUS AND CIRCUIT FOR :
POWER SUPPLY, AND APPARATUS
FOR CONTROLLING LARGE CURRENT
LOAD

PRELIMINARY AMENDMENT

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

SIR:

Prior to a first examination on the merits, please amend the above-identified
application as follows:

IN THE SPECIFICATION

Page 8, beginning lines 2-16, delete the existing paragraph and replace it with the
following paragraph:

In this control apparatus, however, the power MOS-FET used as the switching
element of on/off control generates much heat. Therefore, it is necessary to perform the
radiation design accurately. A channel temperature T_{ch} max of the power MOS-FET is
calculated as

$$T_{ch} \text{ max} = (T_a \text{ max}) + (R_{on} \text{ max}) \times (I_o \text{ max}) \\ \times (1_o \text{ max}) \times R_{th} (ch-a)$$

$$= 85^{\circ}\text{C} + 0.013\Omega \times 10\text{A} \times 10\text{A} \times 50^{\circ}\text{C/W}$$

$$= 150^{\circ}\text{C}$$

where Ta max: ambient temperature

Ron max: on-resistance

Io max: current value

Rth (ch-a): thermal resistance between channel and environment.

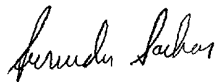
REMARKS

The present preliminary amendment is submitted to correct for a minor informality in the specification, which is deemed to be self-evident from the original disclosure.

The present application is believed to be in condition for a full and thorough examination on the merits. An early and favorable consideration of the present application is hereby respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Gregory J. Maier
Registration No. 25,599
Attorney of Record
Surinder Sachar
Registration No. 34,423

Crystal Square Five - Fourth Floor
1755 Jefferson Davis Highway
Arlington, Virginia 22202
(703) 413-3000
Fax #: (703) 413-2220
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Serial No: _____

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10-5-01

IN THE SPECIFICATION

Page 8, beginning line 5, delete the existing paragraph and replace it with the following paragraph:

--In this control apparatus, however, the power MOS-FET used as the switching element of on/off control generates much heat. Therefore, it is necessary to perform the radiation design accurately. A channel temperature $T_{ch \max}$ of the power MOS-FET is calculated as

$$\begin{aligned} T_{ch \max} &= (T_a \max) + (R_{on \max}) \times (I_o \max) \\ &\quad \times (I_o \max) \times R_{th (ch-a)} \quad [\dots (10)] \\ &= 85^{\circ}\text{C} + 0.013\Omega \times 10\text{A} \times 10\text{A} \times 50^{\circ}\text{C/W} \\ &= 150^{\circ}\text{C} \end{aligned}$$

where $T_a \max$: ambient temperature

$R_{on \max}$: on-resistance

$I_o \max$: current value

$R_{th (ch-a)}$: thermal resistance between channel and environment.--